REMARKS

Status of Claims and Amendment

Upon entry of this amendment, which is respectfully requested, claim 7 will be amended. Claims 1-6, 11-12, 14, and 16 are canceled. Claims 7, 13, 15, and 17 are all the claims pending in the application. Claims 8-10 are withdrawn from consideration. Claims 7 and 13-17 are rejected.

Claim 7 has been amended to delete "a polypeptide comprising an amino acid sequence in which 1 to 15 amino acids are deleted, substituted, and/or inserted in the amino acid sequence of SEQ ID NO:2 or 4, and exhibiting an activity of promoting insulin production by activation" and to replace "80% or greater homology with that of SEQ ID NO:2 or 4" with " 95% or greater homology with that of SEQ ID NO:2 or 4." Support for the amendment to claim 7 may be found throughout the specification, for instance, at page 14, 2nd full paragraph.

The specification at page 13 has been amended to replace "SEQ ID NO: 2 or 16" with SEQ ID NO: 2 or 4." This Amendment to the specification is to correct a clerical error due to a mistranslation from the Japanese specification of the PCT/JP2003/011548.

No new matter is added.

Information Disclosure Statements

Applicants thank the Examiner for acknowledgement of the Information Disclosure Statement filed August 16, 2007, as well as returning a signed and initialed copy of the PTO Form SB/08 submitted therewith.

Response To Provisional Nonstatutory Obviousness-Type Double Patenting Rejections

Claims 7 and 13-17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 19 and 21-25 of copending Application No. 10/975367.

The Office Action asserts that the conflicting claims are not patentably distinct from each other because both applications claim a method using a nucleotide vector comprising the same sequences; instant SEQ ID NO:2 is identical to SEQ ID NO:2 of 10/975367 and instant SEQ ID NO:4 is identical to SEQ ID NO:16 of 10/975367. The Office Action further asserts that claims are directed to using identical polypeptides expressed from DNA vectors transfected into cells in methods increasing insulin production, insulin content, and insulin-stimulatory signaling in the cells.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

In response, Applicants respectfully request that the rejection be held in abeyance.

Response To Claim Rejections Under35 U.S.C. § 112

Claim 7, 12 [sic.], 13, and 16 remain rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

According to the Office Action, the specification does not provide reasonable written description for polypeptides of SEQ ID NO: 2 or 4 in which 1 to 15 amino acids are deleted,

substituted, or inserted, and additionally does not provide support for a method wherein the polypeptide has 80% or greater homology. While not making an enablement rejection, the Office Action also states that for the same reason, the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

The Office Action goes on to state that in order to provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. According to the Office Action, no characteristics are provided to support the invention of claims 7 and 12-13 [sic. 7, 13 and 16].

The Office Action asserts that, in traversing this rejection in the previous Office Action, Applicant pointed out that the homology between the human polypeptide consisting of the amino acid sequence of SEQ ID NO:2 and the rat polypeptide consisting of the amino acid sequence of SEQ ID NO:4 is 80.6%, as described in the paragraph bridging pages 10 and 11 of the specification.

Applicant also prepared Attachments A and B showing an alignment of the amino acid sequence of SEQ ID NO:2 (human sequence) and that of SEQ ID NO:4 (rat sequence), and another alignment of human, rat, and mouse sequences, respectively. Applicant pointed out that those skilled in the art using alignment algorithms well-known in the art could gain an understanding as to what amino acids are likely to be essential for SEQ ID NO:2 or 4 to have activity of promoting insulin production by activation.

The Office Action responds to Applicant's position at pages 7-8 of the Office Action. The Office Action agrees that the application does have one example of a variant that is 80% or more homologous to the polypeptide having SEQ ID NO:4 and that one of ordinary skill in the art would use sequence alignments to guide them in determining which residues are functionally important. However, the Office Action states that Applicant claims the *entire genus* of polypeptides of SEQ ID NO: 2 or 4 in which 1 to 15 amino acids are deleted, substituted, or inserted, and wherein the polypeptide has 80% or greater homology. The Office Action adds that sequence alignments between species are not always precise. The Office Action states that the specification must have specific examples of variant polypeptides that can activate insulin production.

In addition to the arguments presented in the Amendment filed August 16, 2007, Applicant submits that the Office Action is incorrect in the assertion that Applicant claims the *entire genus* of polypeptides of SEQ ID NO: 2 or 4 in which 1 to 15 amino acids are deleted, substituted, or inserted, and wherein the polypeptide has 80% or greater homology. The claims recite that the polypeptides exhibit activity of promoting insulin production by activation. Therefore, Applicant is claiming only variants that are functional.

Further, Applicant notes that the claims have been amended to even further clarify the present invention by removing the phrase "deleted, substituted, or inserted" and to recite "having a 95% or greater homology with that of SEQ ID NO:2 or 4."

As the Office is aware, the "Revised Interim Written Description Guidelines Training Materials" state that a claim reciting "A protein having SEQ ID NO: 3 and variants thereof that

are at least 95% identical to SEQ ID NO: 3 and catalyze the reaction of A→B." meets the requirements of 35 U.S.C. § 112, first paragraph (see Example 14).

Accordingly, reconsideration and withdrawal of the rejection under § 112, first paragraph, is respectfully requested.

Response To Claim Rejections Under 35 U.S.C. § 102

Claims 7 and 13-17 are rejected under 35 U.S.C. § 102(e) as being anticipated by Chen et al. (US 7,108,991, issued 19 September 2006, which claims priority to provisional application 60/141,448, filed 29 June 1999).

According to the Office Action, Chen et al. teach a method of using a G protein-coupled receptor called RUP3 in an assay for identifying compounds that modulate insulin production. The Office Action asserts that RUP3 (also identified in the patent of Chen et al. as SEQ ID NO:8) is identical to instant SEQ ID NO:2. Specifically, the Office Action asserts that the RUP3 DNA is inserted into a DNA vector which is transfected into cells; the cells are then contacted with an agonist or antagonist that inhibits or stimulates insulin production (see Claims 1-11, for example). According to the Office Action, the step of "confirming" recited in instant claim 13 is a step of repeating; and one would expect the same results from the steps recited in Chen et al. regardless of the number of times the assay is performed.

Therefore the Office Action concludes that the teachings of Chen et al. are deemed to anticipate instant claims 7 and 13-17.

Applicant submits that Chen et al. does not inherently or expressly disclose the presently claimed method for at least the following reasons.

Chen et al. does not recognize that RUP3 is associated with insulin regulation. Chen et al. clearly indicate at column 5 line 62-64, that Chen et al. are making nothing more than an educated guess as to a possible function of RUP3. Furthermore, there is no disclosure in Chen et al. that activation of or binding to RUP3 promotes insulin production. Rather, the disclosure is merely that RUP3 may play a role in insulin "regulation." This disclosure as to function is vague at best and surely does not teach or suggest the promotion of insulin production, as recited in the present claims. In addition, based on Example 2, the RUP3 receptor was never expressed in any cell. Thus, no assay was ever performed and there can be no inherent anticipation.

The disclosure of Chen et al. is merely that RUP3 is expressed in the pancreas. Although Chen et al. shows the tissue distribution of RUP3 in the pancreas (see Example 3, Fig. 3, and column 16, lines 18-19 of Chen), one of ordinary skill in the art would understand that such data is inconclusive to show that RUP3 is involved in insulin regulation for at least the following reasons. First, although RUP3 is shown to be expressed in the pancreas by Chen et al., the disclosed data does not show whether the RUP3 is expressed by the endocrine or the exocrine cells which make up the pancreas. Second, the disclosed data does not show that RUP3 is expressed by any one of the four main types of cells of the islets of Langerhans which are involved with endocrine function. Third, and more specifically, the disclosed data does not show that RUP3 is expressed by the β cells of the islets of Langerhans which are involved with the secretion of insulin. Fourth, Chen et al. does not disclose measurement of insulin. In fact, it is inconclusive, based upon the data disclosed by Chen, that RUP3 is involved in endocrine or exocrine function because Chen takes no further steps to measure insulin production or the amount of insulin, which is required for the claimed invention. Thus, the measurement of

insulin is not a necessary element to carry out the screening method of Chen et al. which merely screens "candidate compounds…[that] act at [the] cell surface protein [emphasis added]", by measuring the levels of cAMP to determine "the ability of the compound or compounds to inhibit or stimulate [the] receptor" (See column 5, lines 26-31, and columns 6-7 of Chen).

To show that the specific expression of a protein in the pancreas does not always suggest a relationship between the protein and insulin, Applicants submit herewith the following documents, which disclose the following proteins are specifically expressed in the pancreas, but not involved with insulin[1]:

(1) Ozaki et al., GENES, CHROMOSOMES & CANCER 22: 179-185 (1998), discloses expression of pancpin in the pancreas. (See Abstract and Figure 1).

(2) Lowe et al., Biochemistry 29: 823-828 (1990), discloses expression of colipase in the pancreas. (See Abstract and Figure 6).

(3) Reseland et al., J. Biol. Chem. 272: 8099-8104 (1997), discloses expression of chymotrypsin-like protease in the pancreas. (See Abstract and Figure 2).

(4) J. Biol. Chem. 264(33): 20042-20048 (1989), discloses expression of pancreatic lipase. (See Abstract and Figure 7).

(5) Nilsson et al., Eur. J. Biochem. 192: 543-550 (1990), discloses expression of pancreatic carboxylic ester hydrolase (See Abstract and Figure 4). Figure 4 shows the specific expressions in pancreas (lane B) as well as lactating mammary gland (lane A).

[1] In accordance with M.P.E.P. § 609(c), the documents cited herein in support of Applicants' remarks are being submitted as evidence directed to an issue raised in the Office Action, and no fee pursuant to 37 C.F.R. §§ 1.97 and 1.98, or citation on a Form PTO/SB/08 or PTO-1449 is believed to be necessary.

(6) Bhagwandin et al., J. Biol. Chem. 278: 3363-3371 (2003), discloses expression of and pancreasin. (See Abstract and Figure 6).

(7) Dig.Dis. Sci. 52: 1-17 (2007), discloses expression of pancreatic digestive enzymes. (See Abstract and Table 1).

For many of the same reasons, Chen et al. does not suggest that activation of RUP3 promotes insulin production, and, thus, Chen et al. does not make obvious the present claims.

Chen et al. merely discloses that RUP3 may play a role in insulin "regulation". Chen et al. does not disclose that a substance which activates the presently claimed polypeptide can promote insulin production and/or increase insulin content.

Furthermore, Chen et al. does not anticipate the presently claimed invention for the following reasons.

Chen et al. as originally filed does not refer to "insulin." Applicants note that a claim directed to a method for identifying a candidate compound as a modulator of glucose concentration in the blood, and the recitation "RUP3 may play a role in insulin regulation and/or glucagons regulation" were added by a Preliminary Amendment filed on July 28, 2003, which is submitted herewith. The Examiner appears to have based the present rejection on the rationale that claims 1-11 of Chen et al. discloses the present invention. However, Applicants submit that because the claims of Chen et al. were added in a Preliminary Amendment on July 28, 2003[2],

[2] The Preliminary Amendment filed July 28, 2003 and the original specification for U.S. Patent Application No. 10/393,807 to Chen et al. previously submitted on January 2, 2008.

Chen et al., does not antedate the priority documents of the present application[3]. Accordingly, Chen et al. is not anticipatory art under §102(e).

Accordingly, reconsideration and withdrawal of the rejection under §102(e) is respectfully requested.

Withdrawal Of Rejections

Applicant thanks the Examiner for withdrawal of the rejection under 35 U.S.C. § 112, second paragraph, the rejection under 35 U.S.C. § 102(b) over Fehmann and the rejection under 35 U.S.C. § 103(a) over Bonini et al.

[3] The English translations of priority documents Japanese Application No. 2002-265622 filed September 11, 2002, and Japanese Application No. 2003-056813 filed March 4, 2003 were previously submitted on January 2, 2008.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

/Tu A. Phan/

Tu A. Phan, Ph.D.
Registration No. 59,392

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: March 3, 2008